

## **ABSTRACT**

Disclosed is a method of forming an oxynitride film. The method comprises the steps of loading a silicon substrate into an oxidization furnace, implanting an oxygen based source gas into the oxidization furnace to grow a  
5 pure silicon oxide film on the silicon substrate, blocking implantation of the oxygen based source gas and implanting an inert gas to exhaust the oxygen based source gas remaining within the oxidization furnace, raising a temperature within the oxidization furnace to a nitrification process temperature, stabilizing the temperature within the oxidization furnace,  
10 implementing a nitrification process for the pure silicon oxide film by implanting a nitrogen based source gas, and stopping implantation of the nitrogen based source gas and rapidly cooling the oxidization furnace while implanting the inert gas into the oxidization furnace.